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**PACIFIC GAS AND ELECTRIC COMPANY**

**2017 GENERAL RATE CASE**

**LATE FILED EXHIBIT ON SMARTMETER™ UPGRADE  
COST EFFECTIVENESS UPDATE**

**EXHIBIT (PG&E-45)**

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**PACIFIC GAS AND ELECTRIC COMPANY  
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**PACIFIC GAS AND ELECTRIC COMPANY**  
**LATE FILED EXHIBIT ON SMARTMETER™ UPGRADE**  
**COST EFFECTIVENESS UPDATE**

**A. Introduction**

This late filed testimony is prepared pursuant to the instructions of Administrative Law Judge (ALJ) Stephen Roscow.<sup>1</sup> The ALJ's request, Pacific Gas and Electric Company's (PG&E or the Company) conclusions and the relevant section of this testimony pertaining to the request are summarized in the table below.

**TABLE 45-1**  
**SUMMARY OF LATE FILED EXHIBIT ON SMARTMETER™ UPGRADE COST EFFECTIVENESS**

Request	Conclusion	Section of Testimony
Prepare an incremental analysis of Table 3 on page 152 of Decision (D.) 09-03-026, estimating the portion of incurred costs associated with each element of the adopted incremental cost forecast.	PG&E estimates that the recorded costs of the SmartMeter™ Upgrade are approximately \$87.5 million less (on a Present Value of Revenue Requirement, or PVR, basis) than the approved costs. See Table 45-2.	B
Break-out by year the \$202.3 million reduction in the PVR for the full SmartMeter™ Program referenced on Table 1-1 of Exhibit (PG&E-16).	See Table 45-3.	C
Rerun the time-of-use (TOU) benefits calculated in Workpaper 2 supporting Exhibit (PG&E-16) using current price forecasts through 2030.	PG&E calculates that the TOU benefits using current price forecasts would reduce the benefits from \$186 million to \$164 million on a PVR basis. See Attachment B.	D
Update the tax benefit calculations in Workpaper 3 supporting Exhibit (PG&E-16) after determining if the contemplated federal and state rules were formally adopted.	Accelerated depreciation has been formally adopted by the Internal Revenue Service (IRS), but this position has not been fully adopted by the California Franchise Tax Board (FTB). See Attachment 45-4.	E

The California Public Utilities Commission (Commission) initially requested the first item above in D.15-07-008. PG&E had previously attempted to address this request by updating the adopted forecast costs in Table 3 (D.09-03-026),

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<sup>1</sup> Transcript (Tr.) Vol. 12, 1031:16-26.

1 with total incurred costs for the entire SmartMeter™ Program, as recorded, in  
2 Table 1-1 in Exhibit (PG&E-16).

3 A draft outline of this testimony that included the tables herein (without data)  
4 was provided to the service list on October 6, 2016 and discussed in a  
5 conference call with the ALJ, the Office of Ratepayer Advocates and The Utility  
6 Reform Network on that same day.

7 PG&E has prepared workpapers with working files that support the  
8 calculations described herein. These workpapers are available upon request.  
9 Because this is a late filed exhibit, PG&E is not filing the workpapers along with  
10 this exhibit in order to minimize the amount of late filed material.

11 **B. Updated Analysis of Incremental Cost Forecast Adopted in D.09-03-026**

12 PG&E updated Table 3 of D.09-03-026 by estimating the portion of the  
13 overall SmartMeter™ Program recorded costs associated with the incremental  
14 amounts of the SmartMeter™ Upgrade Program forecast summarized in  
15 Table 3. PG&E also recalculated the PVRR of the estimated cash flows.  
16 The results of PG&E's analysis are presented in Table 45-2.

**TABLE 45-2**  
**SMARTMETER™ UPGRADE PROGRAM**  
**INCREMENTAL COSTS TABLE – UPDATED**  
**(THOUSANDS OF NOMINAL DOLLARS)**

	Adopted Amount of Incremental Forecast (A)		Corresponding Estimated Recorded Cost		Basis for Estimate (D)
	Nominal	PVRR	Nominal	PVRR (B)	
<b>Deployment Costs</b>					
Meter Devices	\$ 310,757	\$ 486,358	\$ 325,116	\$ 466,319	(1)
HAN Retrofit	\$ 26,532	\$ 24,581	\$ 21,846	\$ 28,274	(2)
Electromechanical Meter Retrofit	\$ 18,800	\$ 20,372	\$ 22,485	\$ 29,101	(3)
Information Technology	\$ 33,600	\$ 49,793	\$ 22,583	\$ 38,242	(4)
Title 24 Program Costs	\$ -	\$ 26,174	\$ -	\$ 26,174	
Peak Time Rebate Program Costs	\$ -	\$ 27,592	\$ -	\$ 17,384	(5)
Project Management	\$ -	\$ -	\$ -	\$ -	
Training	\$ 1,697	\$ 1,592	\$ 1,697	\$ 1,547	(6)
Risk Based Allowance	\$ 44,139	\$ 46,724	\$ -	\$ -	(7)
<b>Subtotal</b>	<b>\$ 435,525</b>	<b>\$ 683,186</b>	<b>\$ 393,728</b>	<b>\$ 607,041</b>	
<b>Operations and Maintenance Costs</b>					
Operations and Maintenance	\$ 4,993	\$ 42,886	\$ 5,978	\$ 43,674	(8)
Risk Based Allowance	\$ 562	\$ 503	\$ -	\$ -	(7)
<b>Subtotal</b>	<b>\$ 5,555</b>	<b>\$ 43,389</b>	<b>\$ 5,978</b>	<b>\$ 43,674</b>	
<b>Other Costs</b>					
Technology Assessment	\$ 21,400	\$ 18,995	\$ 11,344	\$ 10,831	(4)
Risk Based Allowance	\$ 4,280	\$ 3,445	\$ -	\$ -	(7)
<b>Subtotal</b>	<b>\$ 25,680</b>	<b>\$ 22,440</b>	<b>\$ 11,344</b>	<b>\$ 10,831</b>	
<b>Total Incremental Costs</b>	<b>\$ 466,760</b>	<b>\$ 749,015</b>	<b>\$ 411,050</b>	<b>\$ 661,545</b>	
<b>Difference Between Estimated Recorded Costs and Forecast</b>			<b>\$ (55,710)</b>	<b>\$ (87,470) (C)</b>	

**Notes:**

(A) From Table 3 in D. 09-03-026.

(B) PVRR estimated based on a pro-rata share of the nominal value of the individual cost element (e.g., meter devices, HAN retrofit) to the overall incremental cost for each PVRR cost profile.

(C) Amount does include Bonus depreciation, but does not include additional benefits associated with the accelerated depreciation schedules for electric meters and gas modules as described in Section E of this testimony.

(D) See "Basis for Estimate" discussion below.

As PG&E noted on page 5 of Exhibit (PG&E-16), PG&E's recorded costs for the SmartMeter™ Program did not distinguish between the original Advanced Metering Infrastructure (AMI) Project and the SmartMeter™ Upgrade efforts. Therefore, the amounts summarized in Table 45-2 reflect PG&E's estimate of the incremental recorded costs of PG&E's SmartMeter™ Upgrade Program for individual components adopted by the Commission in D.09-03-026.

To develop these estimates, PG&E relied on different methods to calculate the portion of the recorded costs associated with the SmartMeter™ Upgrade Program. Those methods are described below. The "Basis for Estimate" number in the listing below corresponds to the far right column in Table 45-2 above.

## Basis for Estimate

- Item (1) Meter Devices – PG&E multiplied the actual total number of devices deployed by the recorded average purchase price per unit to derive a total cost of the devices. To calculate the incremental amount associated with the SmartMeter™ Upgrade, PG&E then subtracted from this total the amount funded for meters in the original AMI decision.<sup>2</sup>
- Item (2) HAN Retrofit – PG&E multiplied the actual number of meters deployed without HAN devices that were replaced with new meters by the sum of the recorded average purchase price per unit and the recorded average field installation cost per unit.
- Item (3) Electromechanical Meter Retrofit – PG&E multiplied the actual number of first generation meters that were replaced with new meters by the sum of the recorded average purchase price per unit and the recorded average field installation cost per unit. PG&E then subtracted from this total the amount funded in the original AMI decision.<sup>3</sup>
- Item (4) Information Technology (IT) and Technology Assessment – Both of these technology components include multiple categories of costs. For those categories where costs were recorded separately (for example, Peak Time Rebate (PTR) IT costs, Load Limiting switch IT costs, and HAN Standards Technology Assessment costs), the recorded costs were directly identified. For other IT categories, costs were recorded as part of the overall SmartMeter™ Program and are difficult to either segregate between the original AMI Project and SmartMeter™ Upgrade or allocate based on the nature of the costs. For these latter cost categories, PG&E estimated the portion of recorded costs associated with the incremental SmartMeter™ Upgrade as follows:
  - a) HAN Infrastructure Hardware for Silver Springs Network (SSN):  
Considering the relative magnitude of this category, for purposes of this cost update, PG&E assumed it incurred the estimated costs adopted in D.09-03-026.<sup>4</sup>

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<sup>2</sup> D.06-07-027, Table 1, p. 29.

<sup>3</sup> *Ibid.*

<sup>4</sup> D.09-03-026, Table 3, p. 152.

- 1           b) HAN Infrastructure Hardware and Software Development for Hexagram:  
 2           Considering the earlier than expected availability of HAN-enabled SSN  
 3           devices, PG&E did not need to build out the infrastructure for Hexagram  
 4           devices, therefore, PG&E did not incur any costs for this estimate  
 5           category.
- 6           c) The costs associated with development of HAN, which included both IT  
 7           labor costs associated with the enablement of HAN functionality and  
 8           Technology Assessment costs associated with Pilot and Lab activities,  
 9           were combined and managed together. PG&E allocated the total  
 10          recorded HAN development costs between the IT and Technology  
 11          Assessment lines based on the relative value of the estimates adopted  
 12          in D.09-03-026.<sup>5</sup>
- 13          d) Incremental IT Project Management Office (PMO): Considering the  
 14          relative magnitude of this category, for purposes of this cost update,  
 15          PG&E assumed it incurred the estimated costs adopted in  
 16          D.09-03-026.<sup>6</sup> PG&E also added a pro-rata allocation of additional IT  
 17          PMO costs related to increased IT efforts associated with a  
 18          SmartMeter™ Program scalability release (“Release X”).
- 19          • Item (5) Peak Time Rebate Program Costs – For purposes of the revised  
 20          PVRR calculation, PG&E included an estimate of annual TOU Program  
 21          costs to align to the projected TOU benefits. PG&E used the estimated PTR  
 22          Program costs included in the forecast adopted by the Commission in  
 23          D.09-03-026<sup>7</sup> as a proxy for the TOU Program costs. PG&E shifted these

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5   *Ibid.*

6   *Ibid.*

7   *Ibid.*

annual costs to begin in 2015, to align with the timing assumed in the calculation of TOU benefits.<sup>8</sup>

- Item (6) Training – PG&E tracked training costs for the overall SmartMeter™ Program and the nature of the training does not support a reasonable allocation between the original AMI Program and the SmartMeter™ Upgrade. Considering the relative magnitude of the training costs, for purposes of this cost update, PG&E assumed it incurred the total estimated training costs adopted by the Commission in D.09-03-026.<sup>9</sup>
- Item (7) Risk-Based Allowance – To the extent PG&E used risk-based allowance funds for a particular cost element, the amounts presented in Table 45-2 for that cost element include the risk-based allowance. (Stated another way, PG&E did not record any costs to a risk-based allowance category.)
- Item (8) Operations and Maintenance (O&M) – O&M costs comprise (i) costs of the Network Operations Center; and (ii) IT O&M costs. PG&E calculated a pro-rata share of the recorded combined Network Operations Center costs and a pro-rata share of the recorded IT O&M costs incurred on the overall SmartMeter™ Program, based on the relative amounts adopted in the original AMI Project and SmartMeter™ Upgrade decisions.

### **C. Summary of Reduced PVRR for PG&E's Recorded SmartMeter™ Program Costs by Year**

Table 1-1 of Exhibit (PG&E-16) summarizes the difference between the total forecasted overall SmartMeter™ Program costs adopted by the Commission and the PVRR of the recorded overall SmartMeter™ Program costs. Considering a base year of 2008, the PVRR of the total recorded costs is \$202.3 million less than the PVRR of the adopted forecasts. As described by

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<sup>8</sup> Incremental TOU Program implementation costs are part of a broader effort related to residential rate reform as directed by the Commission's Residential Rate Order Instituting Rulemaking Decision (D.15-07-001). For the years 2017-2019, PG&E included various cost estimates related to residential rate reform and TOU pilots, outreach efforts and other activities in this General Rate Case (GRC). (See Exhibit (PG&E-6), Chapter 3.) PG&E has not prepared a forecast for TOU implementation necessary to deliver TOU benefits for the period covered by this PVRR analysis. PG&E is continuing to work with Commission staff and other stakeholders as part of ongoing Workshops to develop refined estimates for future TOU implementation efforts.

<sup>9</sup> D.09-03-026, Table 3, p. 152.

PG&E's witness during hearings on September 1, 2016,<sup>10</sup> this reduction in PVRR (\$189.5 million of the \$202.3 million total) is mostly due to accelerated tax depreciation ("bonus" depreciation) extended by Congress over the SmartMeter™ Program deployment period. See Attachment A for this chronology. The extension of bonus depreciation is an incremental benefit that was not previously accounted for in either the original AMI or SmartMeter™ Upgrade proceedings because it was unknown at the time of those filings.

Table 45-3 summarizes the reduced PVRR for the overall SmartMeter™ Program by year.

**TABLE 45-3**  
**ANNUAL BREAKDOWN OF TAX IMPACT ON PVRR**  
**(THOUSANDS OF NOMINAL DOLLARS)**

Description (\$000s)	SmartMeter Project Costs (2005 - 2012)	GRC / Other Program Costs (2010 - 2030)	PVRR 2005 Dollars	PVRR 2008 Dollars	PVRR Increase / (Decrease) 2008 Dollars
<b>Amounts per Approved Business Cases</b>					
D:06-07-027 Original AMI Project	\$ 1,739,368	\$ 1,171,146	\$ 2,258,305	\$ 2,813,322	
D:09-03-026 SmartMeter Upgrade	\$ 466,760	\$ 427,704	\$ 601,248	\$ 749,015	
Original AMI Project + SMU Combined	\$ 2,206,127	\$ 1,598,849	\$ 2,859,553	\$ 3,562,337	
<b>Original AMI Project + SMU Combined</b>					
Actual Costs with the Original Tax PVRR Profiles	\$ 2,288,702	\$ 1,598,849	\$ 2,871,378	\$ 3,577,068	\$ 14,731
Actual Costs less projected PTR Program Costs	\$ 2,288,702	\$ 1,548,231	\$ 2,849,229	\$ 3,549,476	\$ (27,592)
Actual Costs less PTR with Actual Tax PVRR Profiles	\$ 2,288,702	\$ 1,548,231	\$ 2,697,137	\$ 3,360,005	\$ (189,471)
Combined PVRR Increase / (Decrease)					\$ (202,333)

  

Annual Breakdown	Incremental Costs with Timing Delay	Reduced PTR Program Costs	Impact of Tax Profiles	Total
2005	\$ (23,081)	\$ -	\$ 1	\$ (23,080)
2006	\$ (259,304)	\$ -	\$ 275	\$ (259,030)
2007	\$ 135,190	\$ -	\$ 7,051	\$ 142,242
2008	\$ (140,762)	\$ -	\$ (20,175)	\$ (160,937)
2009	\$ 78,317	\$ -	\$ (69,751)	\$ 8,565
2010	\$ 225,455	\$ (3,041)	\$ (61,332)	\$ 161,082
2011	\$ 104,135	\$ (6,223)	\$ (36,094)	\$ 61,817
2012	\$ (110,011)	\$ (5,784)	\$ (6,731)	\$ (122,525)
2013	\$ 4,791	\$ (1,290)	\$ (1,584)	\$ 1,918
2014	\$ -	\$ (1,199)	\$ (1,633)	\$ (2,831)
2015	\$ -	\$ (1,114)	\$ (229)	\$ (1,343)
2016	\$ -	\$ (1,035)	\$ (467)	\$ (1,503)
2017	\$ -	\$ (962)	\$ (358)	\$ (1,320)
2018	\$ -	\$ (894)	\$ (218)	\$ (1,112)
2019	\$ -	\$ (831)	\$ (249)	\$ (1,080)
2020	\$ -	\$ (772)	\$ (185)	\$ (957)
2021	\$ -	\$ (718)	\$ (82)	\$ (799)
2022	\$ -	\$ (667)	\$ (79)	\$ (746)
2023	\$ -	\$ (620)	\$ (37)	\$ (657)
2024	\$ -	\$ (576)	\$ 11	\$ (565)
2025	\$ -	\$ (535)	\$ 39	\$ (496)
2026	\$ -	\$ (498)	\$ 111	\$ (386)
2027	\$ -	\$ (431)	\$ 1,365	\$ 934
2028	\$ -	\$ (258)	\$ 441	\$ 183
2029	\$ -	\$ (128)	\$ 601	\$ 472
2030	\$ -	\$ (17)	\$ (161)	\$ (177)
Grand Total	\$ 14,731	\$ (27,592)	\$ (189,471)	\$ (202,333)

<sup>10</sup> Tr. Vol. 12, 1020:15 to 1021:2.

As a point of clarification, the \$202.3 million in reduced PVRR shown above in Table 45-3 does not include the \$83.5 million in incremental tax benefits shown in Table 45-4 below. The \$202.3 million represents the “baseline” Scenario A in Table 45-4.

**D. Updated TOU Benefits Calculation Considering Current Power Price Forecasts**

PG&E updated the estimated TOU benefit calculations by using the market-based power pricing assumptions included in the most recent E3 Avoided Cost Calculator.<sup>11</sup> Recalculating PG&E’s estimated TOU benefits with these updated figures, the PVRR of projected TOU benefits is reduced from \$185.7 million (reflected in Exhibit (PG&E-16), Table 1-2) to \$164.3 million. PG&E’s analysis is set forth in Attachment B.

**E. Updated Analysis of Original Tax Benefit Forecast According to Whether Rules Have Been Formally Adopted by Federal and State Tax Authorities**

In Table 1-2 of Exhibit (PG&E-16), PG&E included a line item for additional potential tax benefits that were not previously included in PG&E’s original AMI or SmartMeter™ Upgrade filings. These tax benefits are associated with federal and state income tax determinations authorizing shortened tax depreciation lives for solid state meters, gas meter modules and related distribution and transmission equipment. For purposes of this estimated benefit quantification, PG&E compared the PVRR values calculated with the revised tax treatment to the PVRR values calculated without the revised tax treatment using the same model developed for the AMI and SmartMeter™ Upgrade filings. In this late filed exhibit, PG&E addresses when, and if, the IRS and FTB have formally adopted PG&E’s request for the adjusted tax treatment.

**Federal tax benefits.** As a first mover in making substantial investments in solid state meters, PG&E asserted to the IRS during 2008 that the new solid state electric meters and associated equipment were part of a computerized

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<sup>11</sup> Source: E3 Avoided cost calculator at [http://Ethree.com/public\\_projects/cpucSGIP.php](http://Ethree.com/public_projects/cpucSGIP.php). File name: [http://ethree.com/documents/E3\\_NEM\\_Avoided\\_Cost%20Model\\_SGIP\\_Update\\_20150521.xlsm](http://ethree.com/documents/E3_NEM_Avoided_Cost%20Model_SGIP_Update_20150521.xlsm). This version was used for 2017 DR bridge year funding request per ALJ ruling December 3, 2015. Resource balance year was set to only long-run capacity cost consistent with Resolution E-4801 (September 29, 2016) as required by D.16-06-007 (June 16, 2016) in Distributed Energy Resources Rulemaking 14-10-003.

1 information system that allowed for more rapid tax depreciation than was then  
 2 allowed for gas and electric distribution property. After a long period of  
 3 controversy, on August 8, 2012, the IRS released to PG&E a technical advice  
 4 memorandum (TAM) supporting PG&E's position on the electric meters.<sup>12</sup>

5 With respect to depreciation of the gas meters, in conjunction with an audit  
 6 of PG&E's 2008 tax year, the IRS and PG&E executed an Issue Resolution  
 7 Agreement (IRA) dated September 11, 2015. The IRA involved a compromise  
 8 that gas modules installed after 2008 would be depreciated under the  
 9 accelerated method applicable to computerized information systems and that  
 10 gas modules installed in 2008 would be depreciated under the slower  
 11 depreciation schedules applicable to gas distribution property.<sup>13</sup> The  
 12 calculations underlying this compromise were agreed upon by the IRS in a letter  
 13 from a Senior Tax Coordinator dated May 26, 2016.

14 **State tax benefits.** The FTB generally follows IRS rulings, but not always.  
 15 Until PG&E received favorable determinations from the IRS on the electric  
 16 meters, PG&E reported depreciation for California purposes as longer-lived gas  
 17 and electric distribution property, rather than under the accelerated schedules.

18 On August 10, 2016, in conjunction with FTB's audit for 2008, the FTB  
 19 issued a formal Notice of Action (NOA) accepting PG&E's amended return,  
 20 which reflected the IRS' position for 2008 additions that SmartMeter™ electric  
 21 metering equipment would qualify for accelerated depreciation but that the gas  
 22 modules would not qualify.<sup>14</sup>

23 PG&E has yet to receive a formal ruling from the FTB concerning additions  
 24 made after 2008. While PG&E is optimistic that the FTB will ultimately follow  
 25 IRS guidance for both electric and gas meters, the nature of FTB review is such  
 26 that PG&E cannot state with certainty that the FTB will do so.

27 As noted above, the potential total tax benefits of \$83.5 million previously  
 28 included in Table 1-2 of Exhibit (PG&E-16) were calculated using PG&E's

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<sup>12</sup> The TAM was dated September 16, 2011, but PG&E did not receive it (and was not aware of its conclusion) until almost a year later.

<sup>13</sup> This compromise was implicit in actions taken by PG&E and the IRS at the time the IRA was executed. The IRA itself accepts PG&E's position that the gas modules were part of the computerized information system classification.

<sup>14</sup> The NOA adopted field auditor's schedules dated March 17, 2016 that were provided by letter to PG&E dated April 7, 2016.

historical PVRR model, comparing the PVRR including the revised tax treatment to the PVRR without the revised tax treatment. This is a forward-looking calculation as of the time the SmartMeter™ Upgrade was proposed, assuming that the electric and gas metering equipment would be classified for the subsequent period as a computerized information system.

Using this same historical perspective, Table 45-4 below breaks down the \$83.5 million into individual components, based on whether: (i) the accelerated depreciation classification has been fully adopted by the IRA or FTB; (ii) the property involved is the electric metering equipment or gas modules; and (iii) the assets were funded by the SmartMeter™ Upgrade or the original AMI project. Dividing the potential benefits between those formally adopted by the IRS and those yet to formally adopted by the FTB shows \$51 million (i.e., \$13.052 million + \$38.314 million) in the former category and \$32 million (i.e., \$13.052 million + \$21.289 million) in the latter.

**TABLE 45-4**  
**UPDATED ANALYSIS OF TAX BENEFIT FORECAST**  
**(THOUSANDS OF NOMINAL DOLLARS)**

Scenario	Description	Projected Additional Tax Benefits in PVRR (2008)	Description of Increment	Incremental Benefits in PVRR (2008)	SmartMeter™ Upgrade Funded Assets		Original AMI Project Funded Assets	
					Adopted as of 10/2016	Not Fully Adopted	Adopted as of 10/2016	Not Fully Adopted
					Incremental Benefits in PVRR (2008)	Incremental Benefits in PVRR (2008)	Incremental Benefits in PVRR (2008)	Incremental Benefits in PVRR (2008)
Scenario A	Electric and Gas not treated as computers	<i>BASELINE</i>						
Scenario B	Electric treated as computers for Fed	\$ 29,462	Elec for Fed	\$ 29,462	\$ 13,052	\$ -	\$ 16,409	\$ -
Scenario C	Electric treated as computers for Fed & State	\$ 53,054	Elec for State	\$ 23,592	\$ -	\$ 10,805	\$ -	\$ 12,787
Scenario D	Electric and Gas treated as computers for Fed	\$ 74,958	Gas for Fed	\$ 21,905	\$ -	\$ -	\$ 21,905	\$ -
Scenario E	Electric and Gas treated as computers for Fed & State	\$ 83,460	Gas for State	\$ 8,502	\$ -	\$ -	\$ -	\$ 8,502
Total					\$ 13,052	\$ 10,805	\$ 38,314	\$ 21,289

As with other items in this analysis, quantifying the actual benefit resulting from retroactive changes in tax treatment for asset classes is a complex endeavor. PG&E has not attempted to re-compute this original forecast of

1 potential tax benefits based on actual tax benefits (and their timing) received by  
2 the Company or reflected in rates considering current market conditions and  
3 other external factors. For example, PG&E has been in a tax loss position for  
4 Federal income tax purposes and has not yet realized any cash benefits from  
5 these Federal adjustments; instead the IRS has simply adjusted PG&E's tax loss  
6 carryforward. The first year the Federal accumulated timing benefits will be  
7 incorporated in ratemaking to reduce the revenue requirement is in this  
8 2017 GRC.

9 PG&E is in a taxpaying position to the state of California. As soon as the  
10 FTB formally adopts the IRS position and tax refunds are obtained, PG&E will  
11 true-up state taxes for ratemaking purposes to reflect the difference between tax  
12 depreciation actually allowed and tax depreciation reflected in rates. PG&E  
13 has anticipated the need for a true-up, consistent with the previous balancing  
14 account treatment of SmartMeter™ Program costs, and booked taxes  
15 accordingly.

16 If PG&E were to analyze PVRR based on actual cash flow received or  
17 actual revenue requirement reductions considering the revised tax treatment  
18 along with other external factors, as opposed to a revised analysis of the original  
19 PVRR forecast isolating the effect of the different tax treatment as explained  
20 above, the total benefits would be less than \$83.5 million. PG&E would be in a  
21 position to develop a more comprehensive assessment of total tax benefits once  
22 the FTB treatment has been finalized.

## 23 **F. Conclusion**

24 PG&E has provided herein the four areas of information requested by the  
25 ALJ during evidentiary hearings in Application 15-09-001. This exhibit provides:  
26 (i) an update of the incremental costs of the SmartMeter™ Upgrade; (ii) a  
27 breakdown by year of PG&E's calculation of the \$202.3 million PVRR difference  
28 between the forecasted and recorded costs of the entire SmartMeter™ Program;  
29 (iii) a recalculation of TOU benefits using updated avoided capacity and energy  
30 costs; and (iv) an updated analysis of the original tax benefit forecast according  
31 to whether rules have been fully adopted by federal and state authorities.

**PACIFIC GAS AND ELECTRIC COMPANY**  
**ATTACHMENT A**  
**CHRONOLOGY OF DEVELOPMENTS CONCERNING**  
**BONUS DEPRECIATION**

**PACIFIC GAS AND ELECTRIC COMPANY  
ATTACHMENT A  
EXHIBIT (PG&E-45)  
CHRONOLOGY OF DEVELOPMENTS CONCERNING  
BONUS DEPRECIATION**

On March 9, 2002, the *Job Creation and Worker assistance Act of 2002* provided 30 percent bonus depreciation for qualified property placed in service after September 10, 2001, and before September 11, 2004 (P.L. 107-147, Sec 101(a)).

On May 23, 2003, the *Jobs and Growth Tax Relief Reconciliation Act of 2003* extended and increased the percentage of bonus depreciation for qualified property to 50 percent for property placed in service after May 5, 2003, and before January 1, 2005 (P.L. 108-27, Sec 201(a)).

On February 7, 2008, the *Economic Stimulus Act of 2008* provided 50 percent bonus depreciation for qualified property placed in service after December 31, 2007, and before January 1, 2009 (P.L. 110-185 Sec 103).

On February 17, 2009, the *American Recovery and Reinvestment Act of 2009* extended 50 percent bonus depreciation for qualified property placed in service before January 1, 2010 (P.L. 111-5 Sec 1201).

On September 27, 2010, the *Small Business Job Act of 2010* extended 50 percent bonus depreciation for qualified property for property placed in service before January 1, 2011 (P.L. 111-240, Sec. 2022(a)(1)).

On December 17, 2010, the *Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010* extended bonus depreciation through December 31, 2012. It provided for 100 percent bonus depreciation for property placed in service after September 8, 2010, and before January 1, 2012 and 50 percent bonus depreciation for qualified property placed in service after December 31, 2011, and before January 1, 2013 (P.L. 111-312 Sec 401).

On January 3, 2013, the *American Taxpayer Relief Act of 2012* extended bonus depreciation through December 31, 2013. It provided for 50 percent bonus depreciation for qualified property placed in service after December 31, 2012, and before January 1, 2014 (P.L. 112-240 Sec. 331).

On December 19, 2014, the *Tax Increase Prevention Act of 2014* extended bonus depreciation through December 31, 2014. It provided for 50 percent bonus depreciation for qualified property placed in service after December 31, 2013, and before January 1, 2015 (P.L. 113-295 Sec. 125).

**PACIFIC GAS AND ELECTRIC COMPANY  
ATTACHMENT A  
EXHIBIT (PG&E-45)  
CHRONOLOGY OF DEVELOPMENTS CONCERNING  
BONUS DEPRECIATION**

On December 18, 2015, the *Protecting Americans from Tax Hikes Act of 2015* extended bonus depreciation through December 31, 2019. It provided for 50 percent bonus depreciation for qualified property placed in service after December 31, 2014, and before January 1, 2018, provided for 40 percent bonus depreciation for qualified property placed in service after December 31, 2017, and before January 1, 2019, and provided for 30 percent bonus depreciation for qualified property placed in service after December 31, 2018, and before January 1, 2020 (P.L. 114-113 Sec. 143).

**PACIFIC GAS AND ELECTRIC COMPANY**  
**ATTACHMENT B**  
**BENEFITS ASSOCIATED WITH TIME-OF-USE**

Pacific Gas and Electric Company  
Exhibit (PG&E-45) - Late-Filed SmartMeter™ Upgrade Cost Effectiveness Filing  
ATTACHMENT B - Benefits Associated with TOU

Line	Item		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	--> Default TOU										Ramp Down based on useful life of meter									
														2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030								
1	<b>Avoided Cost of Capacity Associated with TOU</b>																																
2	Residential [a], [d], [e], [f]	MW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	8.1	13.0	18.1	23.3	28.6	33.8	39.2	44.5	50.0	50.6	39.7	16.7	3.7	0.2							
3	Non-Residential [f]	MW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	66.5	76.7	77.5	78.0	78.5	78.8	79.3	79.6	79.9	80.1	80.5	81.5	63.9	26.8	6.0	0.3							
4	Incremental[b], [i]		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.9	19.1	19.9	20.4	20.9	21.2	21.7	22.0	22.3	22.5	22.9	23.2	18.2	7.6	1.7	0.1							
5	Embedded[b], [i]		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	79.1	33.2	7.4	0.3							
6	Adjustment for A6, E19V [g]		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-42.0	-42.0	-42.0	-42.0	-42.0	-42.0	-42.0	-42.0	-42.0	-42.0	-42.0	-42.5	-33.4	-14.0	-3.1	-0.1							
7	Subtotal - Avoided Capacity associated with TOU (MW)	MW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	66.5	79.8	85.6	91.0	96.6	102.1	107.9	113.4	119.1	124.6	130.5	132.2	103.7	43.5	9.7	0.4							
8	Reserve Margin Factors [h]	1.15																															
9	Line Loss Factors [h]	1.11																															
10	Avoided Cost of Capacity (\$, million) [h]	\$	135.50	\$ / kW-yr	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -							
11	<b>Annual Energy Conservation Associated with TOU</b>																																
12	Residential [a], [f]	GWh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.8	2.9	4.1	5.3	6.5	7.7	9.0	10.2	11.4	11.6	9.1	3.8	0.9	0.0							
13	Non-Residential [f]	GWh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	158.4	189.4	191.9	193.8	195.6	197.2	198.7	200.0	201.3	202.5	203.6	176.3	112.7	56.0	36.2	9.3							
14	Incremental[b], [i]		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41.0	72.0	74.5	76.4	78.2	79.8	81.3	82.7	83.9	85.1	86.2	87.3	67.6	36.2	19.3	3.7							
15	Embedded[b], [i]		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	146.9	146.9	146.9	146.9	146.9	146.9	146.9	146.9	146.9	146.9	146.9	148.8	115.2	61.6	32.9	6.4							
16	Adjustment for A6, E19V [g]		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-29.5	-29.5	-29.5	-29.5	-29.5	-29.5	-29.5	-29.5	-29.5	-29.5	-29.5	-59.8	-70.1	-41.8	-16.0	-0.8							
17	Subtotal - Energy Conservation (GWh)	GWh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	158.4	190.1	193.7	196.7	199.7	202.5	205.2	207.7	210.2	212.7	215.0	187.8	121.8	59.8	37.0	9.4							
18	Power Price Forecast (\$/MWh) [c], [h]		\$ 78.5	\$ 37.8	\$ 39.7	\$ 33.7	\$ 32.4	\$ 32.2	\$ 38.1	\$ 44.9	\$ 49.1	\$ 53.4	\$ 57.8	\$ 63.2	\$ 69.2	\$ 73.0	\$ 76.9	\$ 81.7	\$ 86.8	\$ 85.7	\$ 89.6	\$ 93.5	\$ 97.0	\$ 100.4	\$ 103.4								
19	Benefits from Energy Conservation (\$, million)		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 7.1	\$ 9.3	\$ 10.3	\$ 11.4	\$ 12.6	\$ 14.0	\$ 15.0	\$ 16.0	\$ 17.2	\$ 18.5	\$ 18.4	\$ 16.8	\$ 11.4	\$ 5.8	\$ 3.7	\$ 1.0							
20	Total Annual Benefits Associated with TOU (\$, million)		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 18.6	\$ 23.1	\$ 25.1	\$ 27.1	\$ 29.3	\$ 31.6	\$ 33.6	\$ 35.6	\$ 37.7	\$ 40.0	\$ 41.0	\$ 39.7	\$ 29.3	\$ 13.3	\$ 5.4	\$ 1.0							
21	PVRR Factor [h]	7.60%	1.000	0.964	0.896	0.833	0.774	0.719	0.668	0.621	0.577	0.537	0.499	0.463	0.431	0.400	0.372	0.346	0.321	0.299	0.278	0.240	0.144	0.072	0.009								
22	PVRR (2008)	\$ 164.3	million																														

**Assumptions and Notes:**

- a Line 2 and 12 - Source: Statewide Time-of-Use Scenario modeling for 2015 California Energy Commission Integrated Energy Policy Report, Christensen Associates, 2015.
- b Line 4, 5, 14, and 15 - Source: 2014 Load Impact Evaluation of Pacific Gas and Electric Company's Mandatory Time-of-Use Rates for Small and Medium Non-residential Customers: Ex-post and Ex-ante Report, Christensen Associates, 2015.
- c Source: E3 Avoided cost calculator at [http://Ethree.com/public\\_projects/cpecSGIP.php](http://Ethree.com/public_projects/cpecSGIP.php). File name: [http://Ethree.com/documents/E3\\_NEM\\_Avoided\\_Cost%20Model\\_SGIP\\_Update\\_20150521.xlsm](http://Ethree.com/documents/E3_NEM_Avoided_Cost%20Model_SGIP_Update_20150521.xlsm). This version was used for 2017 DR bridge year funding request per ALJ ruling December 3, 2015. Resource balance year was set to only long-run capacity cost consistent with Resolution E-4801 (September 29, 2016) as required by D.16-06-007 (June 16, 2016) in DER R.14-10-003.
- d Assumed that behavioral impact from residential customers from default TOU will be effectively similar to Scenario #3 (30% opt-in with proposed TOU rates).
- e From 2016 through 2024 represents the increase in adoption rates and learning curve.
- f From 2026 to 2030, peak load reduction numbers have been reduced to match the useful life of the meters (20 yrs).
- g Adjusted for A6 and E19V customers as they were already under TOU rates.
- h Assumed same reserve margin factors, line loss factors, and PVRR factor as the previous workpapers submitted for D.09-03-026 ( A.07-12-009).
- i Incremental Non Residential customers refer to the new customers enrolled in to the TOU program.
- j Embedded Non Residential customers refer to the existing customers in the TOU program for that specific year.